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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/833,540	04/11/2001	John T. Brown	SP00-130	4778
22928	7590	07/09/2004	EXAMINER	
CORNING INCORPORATED			, LOPEZ, CARLOS N	
SP-TI-3-1			ART UNIT	
CORNING, NY 14831			PAPER NUMBER	
			1731	

DATE MAILED: 07/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/833,540

Applicant(s)

BROWN ET AL.

Examiner

Carlos Lopez

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ed

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1) Claims 1-3, 17, 24-27 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heitmann (US 5,609,666) in view Siegfried (US 4,235,616).

Heitmann discloses an OVD process for producing an optical fiber performs having a low OH content. Heitmann's process comprises the claimed "generating heat from a combustion burner having a flame" and "flowing a glass precursor into the flame to produce silica-containing soot; and depositing, in a relative back and forth motion, the silica-containing soot onto an outside surface of a rotating substrate to form a soot performs" as noted in Col. 1, lines 50ff and bridging paragraph of columns 1-2. Heitmann is silent disclosing the claimed "igniting a substantially hydrogen-free fuel" to produce the flame. Since Heitmann's is concerned with producing a low OH optical fiber performs, by diffusing drying gas from the center of the preform to the outside of the preform in order to reduce water vapor within the pores of the preform, one of ordinary skill in the art would appreciate the teachings of Siegfried. Siegfried teaches that generating heat from a combustion burner having a flame produced by igniting a substantially hydrogen-free fuel such as carbon monoxide and oxygen as disclosed in Col. 6, lines 63ff avoids the incorporation of water into the

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preform, the very same problem that Heitmann tries to remedy. Hence, at the time the invention was made it would have been obvious to a person of ordinary skill in the art to have provided Heitmann's burner with substantially hydrogen free fuel as taught by Siegfried in order to avoid the incorporation of water vapor in the preform.

The use of a hydrogen free fuel would consequently create a flow over the preform of water- free combustion by-products created by said hydrogen free fuel.

In regards to claims 2-3, Heitmann's notes in Col. 1 lines 50ff and col. 2 lines 4ff, silicon and germanium tetrachloride as the claimed glass precursors and/or dopant as in the case of germania.

In regards to claim 5 and 17, Siegfried discloses using CO as the claimed fuel (Col. 6, lines 65ff), which is then by combusted to CO₂ would thus comprise the gases flowing over the preform.

As for claims 6-9, since the fuel being supplied to the flame lacks any hydrogen, it would be expected that the atmosphere over the preform would lack any water.

As for claims 24-27, as noted above silica precursors include germania. Hence when the burner makes a passes over the preform it would consequently create a first segment and second segments containing both silica and germania.

2) Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heitmann (US 5,609,666) in view Siegfried (US 4,235,616) and in further view of Abbott et al (US 5,116,400). Heitmann and Siegfried are silent disclosing depositing the silica soot within a housing. However, since Heitmann and Siegfried are both concerned with the incorporation of water into the perform it would be obvious to a person of ordinary skill in the art at the time the invention was made, that the deposition of silica would occur as is done in the prior art, as shown by Abbott in figure 3, within a housing in order to provide a controlled environment that would prevent water and/or other contaminants from the atmosphere entering the preform.

As for claim 11, the burners shown in figure 3 of Abbott are within the housing.

3) Claims 12-16, and 42-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heitmann (US 5,609,666) in view Siegfried (US 4,235,616) as applied to claim 1 above and in further view of Lemon et al (US 6,266,980) and Daito (JP 09110454). As noted above Heitmann and Siegfried are concerned with avoiding the incorporation of "water" into the glass preform. Both are silent disclosing a transferring the formed preform to another location in a substantially water-free atmosphere for furthering processing. However, transferring a formed preform in a water-free atmosphere is well known in the art as disclosed by Lemon et al (US 6,266,980) and Daito (JP 09110454). Lemon teaches that performs may be placed in an argon filled holding vessel for further processing (Col. 2, lines 8ff). Additionally as

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shown by Daito, holding vessels contain clean air (dry air) for transporting an optical fiber preform for further processing (Daito's abstract). At the time the invention was made it would have been obvious to a person of ordinary skill in the art to have placed the formed preform resulting from the teaching of Heitmann and Siegfried into a holding vessel having water-free atmosphere as well known in the art as shown by Daito and Lemon in order to avoid the re-wetting of the preform.

As for claim 46, the holding vessel as disclosed by Lemon and Daito may obviously be used to transfer the preform to a consolidation furnace.

As for claims 42-45, chilling and passing the argon gas through a molecular sieve and recycling the argon gas are obvious methods to reduce the amount of water in a gas.

As for claims 47-48, it would be obvious to have the holding vessel adapted to be inserted into a furnace in order to prevent any contamination from the surrounding atmosphere.

4) Claims 18-23, 28-31 and 49-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heitmann (US 5,609,666) in view Siegfried (US 4,235,616) as applied to claim 1 above and in further view of Kanamori et al (US 4,627,866).

Heitmann discloses doping the preform with germania but is silent disclosing doping the preform with fluorine. However, Kanamori discloses a method for producing an optical fiber preform (Abstract). Kanamori's method comprises injecting a glass raw material such as germanium tetrachloride and doping the preform with a fluorine containing

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material Abstract). Hence Kanamori shows that doping of a preform with fluorine is known in the art in order to obtain the desired refractive index. Hence at the time the invention was made it would have been obvious to a person of ordinary skill in the art to dope the preform resulting from the teachings of Heitmann and Siegfried with fluorine in order to obtain the desired refractive index.

As for claim 19, claim 5 of Kanomari discloses the claimed fluorine compounds.

As for claim 20-23, Heitmann and Siegfried are silent disclosing the burner structure or how the gases are introduced into the flame. However, Kanomari discloses that the fluorine and glass precursor are expelled from a first nozzle circumferentially surrounding the flame produced by the second and fourth nozzles wherein the first nozzle is considered as a radially directed port and the frame forming the nozzles as the claimed shield. Hence absent any indication by Heitmann and Siegfried, one of ordinary skill in the art would apply known methods such as that disclosed by Kanamori in order to produce fluorine doped performs.

As for claim 28-31, as noted above silica precursors include flourine. Hence when the burner makes a passes over the preform it would consequently creates a second through fourths segment which include fluorine.

As for claim 49, it is known as shown by Winterburn, that carbon monoxide flames do not provide a high exothermic reaction (col. 2, lines 1ff), thus the it would obvious to have conducted routine experimentation in order to provide the optimum

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glass precursor to fuel ratio that would provide sufficient heat to pyrolyze the glass forming material.

As for claim 50, the glass precursors as noted by Kanamori are passed through the center of the burner, the first nozzle, and the hydrogen of Kanamori, which is substituted with hydrogen-free fuel according to the teachings of Siegfried, surrounds the glass precursor first nozzle (See figure 2 of Kanamori).

As for claim 53, the doping level will be dependant on the desired refractive index.

5) Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heitmann (US 5,609,666) in view Siegfried (US 4,235,616) as applied to claim 1 above and in further view of Senda (JP 57-183331). Heitmann and Siegfried are silent disclosing the depositing at least one glassy layer within the soot. However, Senda teaches of sintering the deposited soot into transparent glass, deemed as the claimed glassy barrier layer, controls the concentration distribution of the dopant (Col.4, lines 4-27). Hence, it would have been obvious to a person of ordinary skill in the art to sinter the deposited soot resulting from the teachings of Heitmann and Siegfried into transparent glass as taught by Senda in order to control the concentration distribution of the dopant provided.

6) Claim 35-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heitmann (US 5,609,666) in view Siegfried (US 4,235,616) and in view of Senda (JP

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57-183331) as applied to claim 34 above and in further view of Gouskov (US 6,536,240)

Senda fails to disclose the thickness of the barrier layer. However, Gouskov discloses that the glassy barrier layer is 80 μ m thick (Col. 10, line 9). Hence at the time the invention was made it would have been obvious to a person of ordinary skill to have Senda's barrier layer in the thickness taught by Gouskov in order to avoid dopant migration.

As for claim 39, the doped preform obtained from the teachings of Heitmann would minimize the migration of dopant due to the inclusion of the barrier layer as taught by Gouskov.

As for claim 40, as noted above fluorine dopant is known in the art.

7) Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heitmann (US 5,609,666) in view Siegfried (US 4,235,616) as applied to claim 1 above and in view of Seto et al (JP 63-123829). Heitmann and Siegfried are silent disclosing using both hydrogen and hydrogen free fuel. As taught by Seto, to prevent the diffusions of OH groups to a core part of a preform and prevent soot layer cracking, is desired by depositing glass particles by using hydrogen and hydrogen free fuel (See Abstract). At the time the invention was made it would have been obvious to a person of ordinary skill in the art to have used both hydrogen and hydrogen free fuel with the Heitmann and Siegfried's method of making a preform as taught by Seto in order to prevent soot layer cracking and/or the diffusions of OH groups to a core part of a preform.

Response to Arguments

Applicant's arguments with respect to claims 1-3, and 5-53 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

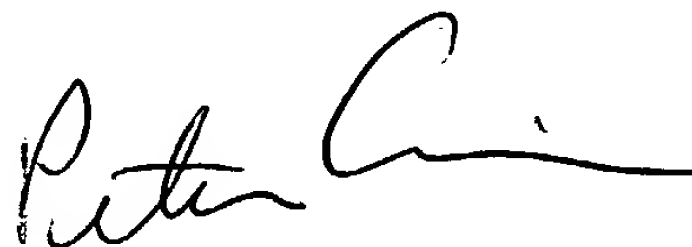
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Lopez whose telephone number is 571.272.1193. The examiner can normally be reached on Mon.-Fri. 8am - 5pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571.272.1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CL



PETER CHIN
PRIMARY EXAMINER